

ZERO BEAT

Published in the interest of the members of the
Pikes Peak Radio Amateur Association, Inc.
Colorado Springs, Colorado

Wayne Brown, W2TPV/Ø
Acting Editor, Phone 598-7096



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The PPRAA meets the second Wednesday of
each month in the Security Savings & Loan
building, East Platte at Union Boulevard.

PRESIDENT'S NEWS

Wayne Brown, W2TPV/Ø

The March meeting of PPRAA will be held,
as usual, at Security Savings & Loan on
March 14 at 7:30 pm.

I was very pleased with the turnout for the
February meeting. The auction was a
great success. I trust we can continue
with the good turnouts.

I was especially pleased with the response
to the "new" ZERO BEAT. Apparently
ZERO BEAT is one of the prime elements
holding PPRAA together, and we need to
keep it going. As reported, this is the
last issue of ZERO BEAT I will publish,

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but I expect to make an announcement at
the March meeting about a new editor,
and he will do an excellent job, I'm sure.

I especially want to thank Jiggs Ozburn,
WØARW for his excellent contribution to
ZERO BEAT this month. Jiggs lives in
Peyton and has been a PPRAA member
for some time. He hopes to attend another
meeting in the near future.

All material in this month's ZERO BEAT
is original, and with your continued sup-
port it will remain this way. THANKS!

Rosie, WAØMNL, has been out of town.
Her "Reportings" will return next month.

Refreshments and door prizes will be in-
cluded as part of the March meeting. SEE
YOU THERE!

THE COLLINS RADIO THAT I KNEW

By Jiggs Ozburn, WØARW

I first met Arthur Collins at a ham club meeting at his house (factory in the basement). I hadn't finished high school and he hadn't finished college (he never did). This was in 1929 and the popular transmitting tubes were 210, 203A, 852 and 204A (10, 50, 75, and 250 watts respectively).

Art was about 27 at the time and had been making ham transmitters for about a year. He was tall and slender and very quiet. He knew what you were going to say before you said it, so not many people engaged him in idle conversation. He came from a well-to-do family whose fortune was taking a beating in those depression years, so Art was pretty much on his own. He had been a teenage ham and had accomplished much in building and operating. He handled a lot of traffic for the Byrd north pole expedition by direct contact with the ships.

By some, he might have been considered anti-social, but there were too many mysteries to solve and goals to conquer in radio to be sitting around at cocktail parties and slapping people on the back. Conversely, Art was kind and fair to the vast army of employees that he eventually came to command.

The type 10A and 10B transmitters using 210 tubes and the type 20B, a monstrous 1 KW transmitter using 204A tubes were built in the basement factory. At this time, to my knowledge, there was only one other successful builder of ham transmitters in the country. Many hams said that production building of transmitters would be impossible. Collins proved that it was possible and along about 1932 was forced to seek larger quarters. At this time Art had decided to devote his entire time to engineering. He hired two part

time engineers and one assembler. He and his staff designed and had built the first line of class B modulation transformers available to the radio industry. This was the first of many technical "firsts" to come out of the Collins labs.

I went to work for Collins in the summer of 1933 to become the second full-time assembly worker. A production superintendent had been hired and the part-time engineers were full-time. Orders started arriving from foreign countries for our equipment to be used in commercial application. Then came the big break-- Commander Byrd needed some first rate communications equipment for his south pole expedition and Collins was chosen to build it (with generous donation of component parts from manufacturers). It was a great thrill to build this gear and, later on, to hear it from the south pole.

The publicity from the Byrd job gave us a big boost and we soon outgrew our present quarters. These quarters were retained for the Enginemen, as we underlings called them, and a building in downtown Cedar Rapids was leased for production. In rapid order we got our first big U.S. government contract, a chief engineer was designated for our rapidly growing engineering staff, and the company

(continued on page 3)



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COLLINS RADIO, continued

was incorporated. Art was kicking around the idea of an automatically tuned transmitter in his head, so a master machinist was hired and our first metal turning lathe was purchased. The automatically tuned transmitter was a success and many thousands in different models were produced. The one you are most likely to have seen or used was the ART-13. Besides the autotune, other accomplishments were inductive neutralization, audio amplifiers with all stages transformer coupled, negative resistance oscillators, the pi-network adapted to high frequencies (called the Collins antenna tuner for many years) and bandswitching in transmitters. Some of these were designed to get around patents held by the big boys (we were, at last, being recognized).

It was apparent that this country would be drawn into the war with Germany, so engineering contracts started rolling in from the government by the dozens. Another large manufacturing plant was acquired and plans drawn up for a brand new facility. Before the war was over this was expanded three times, and virtually all of the empty buildings in Cedar Rapids were leased to Collins. The main production was TCS and ART-13. The most important design to come out of this period of interest to hams was the linear VFO (ours was permeability tuned). Ask Ted Hunter in Iowa City about this if you ever work him on the Eyebank Net.

Collins remained in war material until the very end and was caught with no commercial product lines and nothing to build with (not so with some of the other companies). There was a day and night mad scramble to get something going and by buying some government components we were able to get back in business. Collins had not built a ham receiver up to this time. The first one ever built after the war was the 75A-1. This teamed up with the 32V-1

transmitter. Both had that wonderful linear tuning VFO. What a day for ham radio!

The exploitation of single sideband by Collins is a little story in itself, but it is modern history known by many. The company grew to three large plants in this country and one in Canada, employing over 17,000 people at one time. Collins built all of the communication equipment used in the flight to the moon, as well as much of the telemetry.

All stories can't end happily, and this is one. After the space program was cut back and the supersonic transport was dumped, Collins went into a financial tail-spin and eventually was taken over by another larger company. Mr. Collins remains only as a technical consultant.

To quote Mr. Wilson, present company president, "It should be a source of pride for all of us that Arthur Collins is ranked in the same class as Marconi by many of his peers throughout the world."

As for me, I spent the last 17 years of my career with them as a tech writer (yech), then retired to cold and colorless Colorado (white is colorless, isn't it?) after 25 years with them. Blame me for the instruction books on the 75A-4 and the KWS-1.

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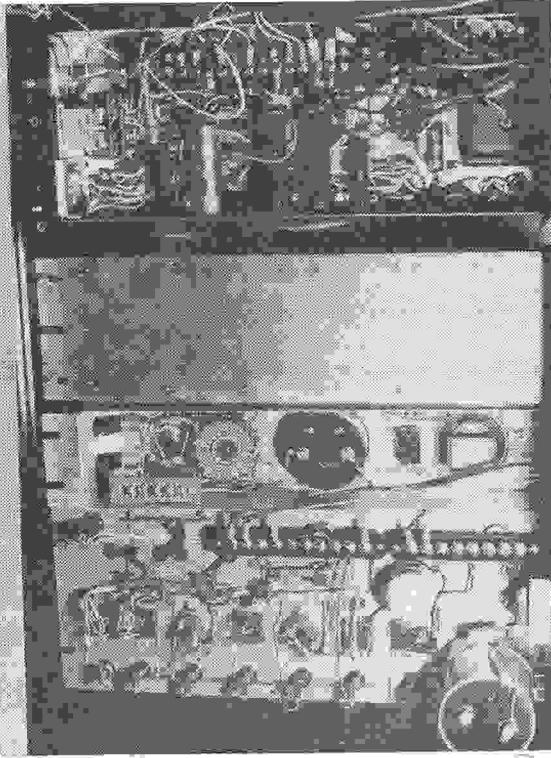
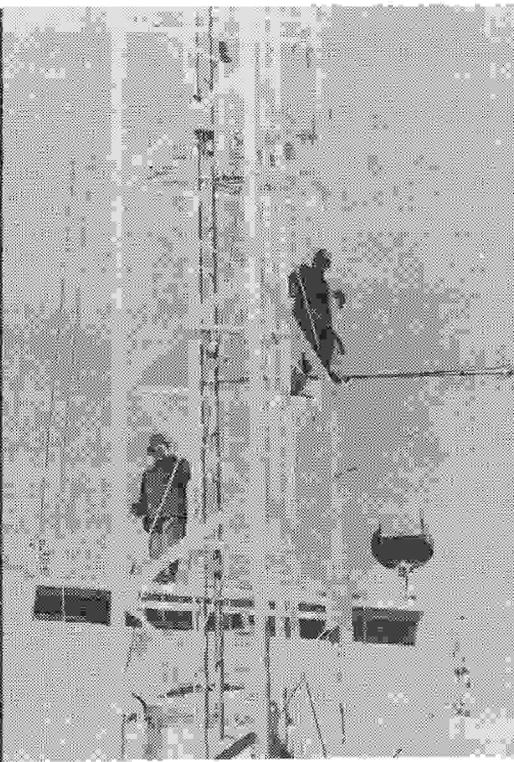
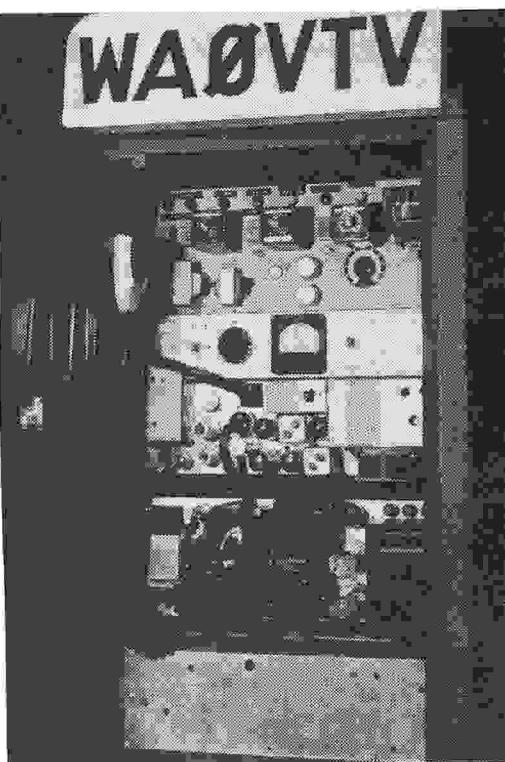
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NEW WAØVTV REPEATER IN OPERATION

WAØVTV



You haven't seen the new repeater? ! Well, feast your eyes on the new WAØVTV, a factory Motorola repeater which is now in operation at the KK TV site on top of Cheyenne Mountain. The second picture shows Larry Rice, WBØFGN and myself, KØUDG on the KKTV tower, measuring the power and adjusting the repeater antenna, at 9510 feet above sea level. The top panel on the repeater rack, showing the solid state timers and the identifier, was designed and wired by Clyde Still, WAØJNO. The identifier and tone decoders were designed and built by George Kowalski, WØGCH. The interconnections were made by Dave Givan, KØIRP and Bob Sayers, WØOFA, and the 400 mhz control and interconnections by Larry Rice, WBØFGN. The photos of the equipment were taken by Mike Stansberry, WBØHCK, and the list goes on. The total hours of work involved in putting this repeater on the air so far are 109 hours. More work remains to be done. Now that we have a little insight of what it took to get WAØVTV

on the air, here is the way it operates.

The repeater has a $1\frac{1}{2}$ minute timer on it, which means if you keep talking for over that length of time without letting off on the mike key, it will shut you off. To reset this timer all you need do is release the mike button for an instant, before you are timed out. You do not need to let the carrier drop out to reset this one. In addition, there is a 3 minute timer that is tripped when the transmitter comes on, and if the $1\frac{1}{2}$ minute timer malfunctions, and does not reset, this one will shut the repeater down and can be reset by tone or manually only. This is a FCC requirement to shut down the equipment should relays hang up or whatever, and would protect the equipment and avoid prolonged carrier on the air with no one on it. The repeater has a 3 second hang on to prolong the life of repeater by not switching the B plus on and off so much, making it easier on the final, relays, and other parts, etc.

(continued on page 5)

REPEATER, continued

Now some guidelines for users:

Do identify yourself at beginning and after each QSO, or when merely testing (see FCC regs).

If you make a call and do not reach the party, it is not necessary to say anything else.

No repeater identification is necessary by the user if the repeater ID is working.

You are not required to give the time when entering or leaving the repeater system.

After making your contact, QSY to a simplex frequency, if practical. Our local repeater (yak yak freq) should be up in a month or so, as soon as we get a license for it. The frequency will be 146.37 mhz into the repeater and 146.97 mhz out. This machine will be a near duplicate of the one on Cheyenne Mountain. It will be located at the Navy Training Center at Lake and Logan St. Its intent will be for local operation and work that cannot be carried on simplex. After the yak yak repeater is put on the air, it will lighten the load on WAØVTV, which can be more useful for mobiles and usage out of the range of the 146.37-97 system or simplex operation.

You should choose a simplex freq that would be useful to you as you travel to other towns (a freq like 146.52 or 58 or any of the popular simplex freq) to carry on locally if close enough in. Avoid using a frequency under the output of a repeater (any repeater) such as 146.76 in our case, unless the repeater is down. This is necessary under FCC rules, as a repeater (or monitoring station) must listen on the repeater output freq, and know that the frequency is not in use, prior to your transmitting. In our case, this is how it will work: the monitor hears a signal

on 146.76 while our repeater is off the air; the monitor will shut the repeater down until it has not heard a signal on 146.76 for a period of 10 seconds, after which time it will unlock the repeater for use. By the same token, should the repeater be in use, the monitor is locked out until the repeater has been silent for 10 seconds, after which time the monitor is again activated. Remember, other repeaters are also being affected by these regulations, and will work similarly to ours. So, don't work simplex under any repeater unless there is an emergency. This, of course, is only being a good amateur.

OK, so much for this time. With any luck by next month I should have a little more news, and can inform users what controls that they can make with their tone pads, and maybe have news on when the phone patch system will be in operation and how to gain access to it. Only one more thing to mention: our repeater fund has been exhausted... so, if you are a user (or just interested in our work, for that matter), and you have not sent in the \$10.00 assessment for 1973, please do so as soon as possible. We find that we need a new antenna for the repeater. A price of \$200 has been quoted to us and we don't have it ... yet... so send your contribution to Pikes Peak FM Committee, 1310 Kingsley Drive, Colo Springs, Co 80909.

73, Pete Demario, KØUDG
Repeater Chairman

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ROUTE MANAGER'S CORNER

Bud Thompson, WØLRN, Littleton, Co

The Colorado NTS portion of the January Simulated Emergency Test (SET) was a qualified success again this year. While all results are not compiled at this early writing (the day after), it appears that the Colorado NTS operators outdid themselves in providing liaison and relay throughout the State, and into and out of the State. Active during the 48 hour period were the Colorado Code Net (CCN), managed by Wayne, W2TPV/Ø, the Silver State Net (SSN), managed by Chris, WØLRW, and the Colorado RACES Net (3990.5), managed by Joe, KØCNV. These three nets maintained nearly constant vigil during the SET periods, and liaison between them, the outside world (via NTS), and local groups (usually on VHF) was good. Other nets may have been working in similar ways, but the reports are not yet available.

This year the "management" of eight different local VHF groups was notified of a way in which the VHF-bound operator or group could participate in SET. Four of these responded prior to the deadline for assignments. Two groups furnished enough volunteers to man their respective channels throughout the 9AM to 11PM period each day of the weekend. The third furnished volunteers for about 1/3 of the time, and it is not known if the fourth manned their channel or not. NTS operators with VHF capability were assigned, as available, to fill in on the VHF watches. The remaining four VHF groups may have had some SET activity. In the case of the channels that were manned, there was sufficient activity to indicate a good level of interest in emergency preparedness. All VHF groups and operators who participated are to be commended for their efforts in helping to further better liaison between AREC/RACES groups and the NTS.

Teletype (VHF autostart) played an important role this year, providing relay between NTS stations in Littleton, Denver, Boulder, and AREC/RACES headquarters in Denver and Littleton. A total of 61 formal messages were relayed between the six stations, in addition to many informal requests, and instructions.

A special thanks to several selected NTS operators throughout the Country, who helped the simulation by originating test health and welfare (H & W) inquiries. Many such messages poured into the Metro area from Louisiana, Ohio, Virginia, Texas, Washington state, Kansas, New Mexico, Utah, and western Colorado. Perhaps we in Colorado can reciprocate in the future (in simulation, of course).

Amateurs all over the State originated the standard "am participating in SET" messages to the SEC in overwhelming numbers. Our new SEC, KØFLQ, is to be commended for such "real time" response to most of these. Many ARL Seventy Nine messages were relayed back through the system to participating hams. Dick also responded admirably to the H & W inquires, originating simulated responses to the inquiring stations throughout the country.

(continued on page 7)

EMERY STUDIO

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FEBRUARY MINUTES Irv Ebel, WØKWV

The February PPRAA meeting was held February 10 at Security Savings & Loan building....called to order at 7:40 pm by President Wayne Brown, W2TPV.... minutes of January meeting approved as published in Feb ZERO BEAT....Ed Pompea, KØZPG, called for applause for Wayne Brown, W2TPV for an outstanding job on February ZERO BEAT....there followed a general discussion on ZERO BEAT. W2TPV reported he will be unable to edit ZERO BEAT longer than the March issue. Also, he will resign as PPRAA President effective in May due to an Air Force reassignment in June....visitors introduced themselves: one was a new comer awaiting his Novice call; another was a former member who rejoined the club....some reference to an article in the "SUN" about CB and the suggestion that we should have more publicity for "nams",....a letter from ARRL explaining the FCC's views on further expansion for "phone" on 75 meters and their reason for not granting this expansion was read by Sec'y Irvin Ebel, WØKWV....Pete Demario, KØUDG, talked on the repeater situation. There were added comments by Bob Shriner, WAØUZO, of Pueblo on repeater plans and the problems with repeaters and the usage of frequencies on the area repeaters....there was a question brought up by Rosie Lewis, WAØMNL and Ida Demario, WAØNTA about the material and money for Conventions, the Cheyenne Convention being the problem. This has since been solved and the material and money are in the proper hands. ...Pete Demario, KØUDG, gave a rundown on the rules for the auction.... DK6FR, Hans E. Nuhn of Germany, and presently of Pueblo, was introduced.... Auction held....W2TPV announced that there would be a board of directors meeting very soon....meeting adjourned at 9:30 pm.

ROUTE MANAGER'S CORNER, continued

In the Metro area, at least, a local exercise was held on Sunday afternoon involving many AREC/RACES/Repeater group members, and many low-band nets. This exercise centered around a simulated earthquake situation, which was also the basis for the H & W inquires coming into the area throughout the weekend. While no exercise goes as smoothly as planned (neither do real communications emergencies), the entire SET in Colorado was an exciting learning exercise -- we wouldn't have it any other way.



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TOUGH BREAK!!

It seems that Frank Craw, WØHWH, our former ZERO BEAT editor, recently went to the hospital thinking he had broken his arm. An examination revealed nothing wrong, however, so Frank headed back to his car, but unfortunately fell and again hurt his arm, so he turned right around and went back into the hospital. However, apparently thinking they'd spent enough time with Frank already, it was four hours before the hospital personnel would again examine him. The finding when they did-- BROKEN ARM!



Ø BEAT



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MARCH 1973



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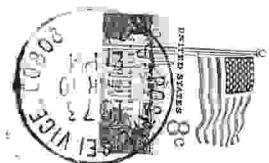
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